

The Shift in Private Sector Union Participation: Explanation and Effects

Ryan Nunn, Jimmy O'Donnell, and Jay Shambaugh



ACKNOWLEDGMENTS

We are grateful to Drew Burd, Christian Henry, Emily Moss, and Jacob Scott for excellent research assistance, and to Lauren Bauer, David Dreyer, Henry Farber, Joy Fox, Richard Freeman, Brad Hershbein, Barry Hirsch, Kriston McIntosh, Lawrence Mishel, Aaron Sojourner, and Karla Walter for insightful comments.

MISSION STATEMENT

The Hamilton Project seeks to advance America's promise of opportunity, prosperity, and growth. The Project's economic strategy reflects a judgment that long-term prosperity is best achieved by fostering economic growth and broad participation in that growth, by enhancing individual economic security, and by embracing a role for effective government in making needed public investments. We believe that today's increasingly competitive global economy requires public policy ideas commensurate with the challenges of the 21st century. Our strategy calls for combining increased public investments in key growth-enhancing areas, a secure social safety net, and fiscal discipline. In that framework, the Project puts forward innovative proposals from leading economic thinkers — based on credible evidence and experience, not ideology or doctrine — to introduce new and effective policy options into the national debate.

The Project is named after Alexander Hamilton, the nation's first treasury secretary, who laid the foundation for the modern American economy. Consistent with the guiding principles of the Project, Hamilton stood for sound fiscal policy, believed that broad-based opportunity for advancement would drive American economic growth, and recognized that "prudent aids and encouragements on the part of government" are necessary to enhance and guide market forces.





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AUGUST 2019

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Abstract

Long-run wage stagnation for lower-wage workers—and rising inequality between high- and middle-wage workers—seems to indicate a modern labor market in which many workers have little bargaining power. In the middle of the 20th century, more than 30 percent of U.S. workers were members of a union: a core institution that provides workers with bargaining power. Today, after a long decline that took place almost entirely within the private sector, just 10.5 percent of workers (and 6.4 percent of private sector workers) are union members. We find that the decline in private sector union membership has been driven by falling union density both within industries and within states, with a smaller role for shifting industry composition. The decline in union membership is economically important: unions lift wages, reduce inequality, and shape how work is organized, among other effects. We examine options for reinforcing enterprise-level unions as well as other models for collective bargaining and enhanced worker voice.

Introduction

The most-important economic relationship for most adults is that between them and their employer. That relationship is vital not just for what it allows them to do together—to produce the goods and services that sustain our standard of living—but also for how it distributes the gains from that production. The majority of families derive most of their income from employment: A recent survey found that families in the lowest, second, and third quartiles of income (i.e., the bottom 75 percent of all families) received between 70.2 and 79.4 percent of their total income from wages (Board of Governors of the Federal Reserve System [2016](#)). Details of the employment relationship determine whether those families thrive or struggle. And for workers themselves, being treated and compensated well by employers is a matter of dignity and a necessity for full participation in American society.

Workers and employers meet on what are often unequal terms. Employers usually have considerably greater financial resources, better information, and more legal expertise than any individual worker on their own.¹ In some cases, the scarcity of firms in a particular area (or among employers for a particular occupation) allows them to pay lower wages (Qiu and Sojourner [2019](#); Rinz [2018](#)) or demand higher skill levels (Hershbein, Macaluso, and Yeh [2019](#)). In many cases, a combination of monopsony and labor market frictions (e.g., costs of or delays in obtaining new employment) increases employers' advantage over workers (Staiger, Spetz, and Phibbs [2010](#); Webber [2015](#)). In the context of a labor market that is rarely at full employment, these advantages are compounded (Bernstein [2018](#)).

The classic solution to this asymmetry in bargaining power is the labor union. By representing individual workers at the bargaining table, a union can ameliorate many of the disadvantages listed above and improve workers' compensation and conditions of work. By preventing employers from playing workers off one another to limit wage

gains and by marshalling more resources and information, unions can generally forge a better deal than individual workers can make on their own. Unions also negotiate safety improvements and other establishment-wide changes that no worker could achieve alone. But unions can also come with costs, particularly in those labor markets that would be relatively competitive in the absence of collective bargaining. For example, unions may prevent an exceptional worker from maximizing their compensation, or they may lift wages above the value of what some workers are able to produce, leading to lower employment.

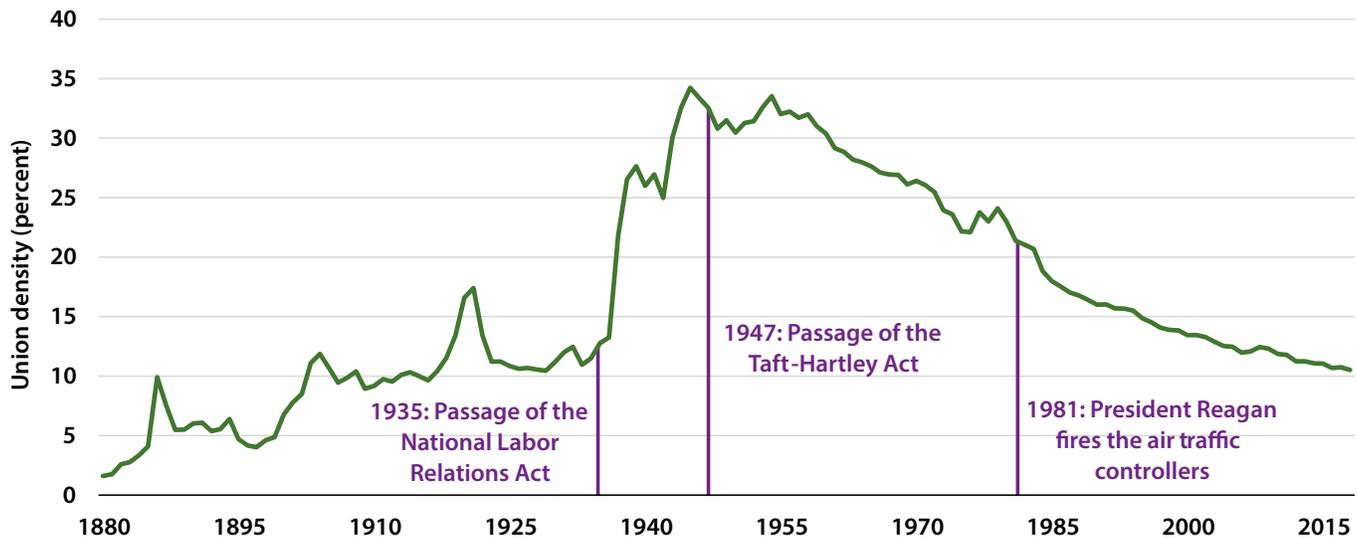
Figure 1 shows that at the beginning of the 20th century, fewer than 1 in 10 workers (public and private sector) were in a union. By the middle of the century, more than 3 in 10 workers were members of a union, and many nonmembers were substantially affected by the presence of unions (Denice and Rosenfeld [2018](#); Fortin, Lemieux, and Lloyd [2019](#); Freeman and Medoff [1984](#)). Today, total union membership has returned to its early 20th century levels with 10.5 percent of all workers belonging to a union. Among private sector workers, union membership is even less common, standing at only 6.4 percent in 2018.

What accounts for the decline? What does this shift mean for workers? And how could policymakers respond? Answering these questions is necessary to support the participation of all workers in economic growth. As such, it is an important part of The Hamilton Project's mission of promoting broadly shared economic growth through a more-informed public policy discussion.

In this economic analysis, we explore these questions and find that the decline has largely occurred within industries and states—not limited to a particular industry or geographic region—and is not driven by the relative decline in manufacturing employment. We present evidence on

FIGURE 1.

U.S. Union Density, 1880–2018



Source: Current Population Survey (CPS; Bureau of Labor Statistics [BLS]) 1973–83; CPS (BLS 1984–2018); Freeman 1998; authors' calculations.

Note: Estimates for 1880–1972 are from Freeman (1998) and estimates for 1973–2018 are authors' analysis of the CPS May Extracts for 1973–83 and the CPS Outgoing Rotation Group for 1984–2018. Missing data interpolated for 1982. Note that Freeman (1998) estimates are for nonagricultural workers and authors' estimates are for all workers.

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the labor market effects of private sector unions, showing that unions reallocate income from employers to workers, with particularly large effects on the lower part of the wage distribution. Consequently, the decline of union participation was an important driver of the increase in wage inequality and wage stagnation for some workers. We conclude with a discussion of future paths for organized labor in the United States.

The Decline in U.S. Private Sector Union Participation

The decline in union membership (also referred to as union density) over the past 45 years has occurred almost entirely within the private sector. By contrast, public sector union density has been roughly constant at just over one third since the wave of state and federal laws recognizing public-sector workers' rights to organize in the 1960s and 1970s (Hirsch and Macpherson 2019). It remains to be seen whether and to what extent the 2018 U.S. Supreme Court decision in *Janus v. AFSCME*—which held that public sector unions may not collect fees from nonmembers—will have a large impact on public sector union density (*Janus v. American Federation of State, County, and Municipal Employees* 2018).

Figure 2 plots union membership as a fraction of employed wage and salary workers, showing that the number of public and private sector union members were roughly equal in 2018.

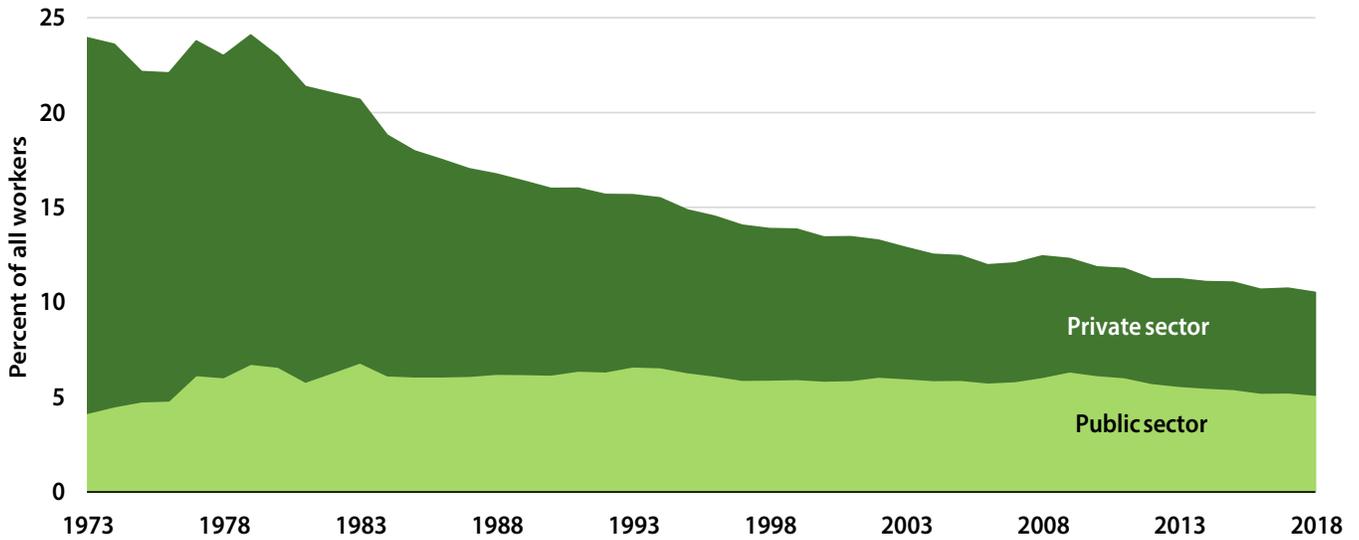
However, public sector employment is only 15.1 percent of total wage and salary employment, and the fractions of public and private sector workers who are union members are 33.9 and 6.4 percent, respectively. Forty-five years ago, the bulk of unionized workers were in the private sector, and the overall decline since the early 1970s has been driven by a reduction in the share of private sector unionized workers.²

Although this decline in union density has been a nationwide phenomenon, it has been particularly pronounced in some regions and states. For example, some states in the Rust Belt (including Indiana, Michigan, Ohio, Pennsylvania, and Wisconsin) experienced union density declines of 20 percentage points or more. By contrast, some states in the South (including Arkansas, Georgia, Mississippi, Oklahoma, South Carolina, and Texas) saw their union densities decline by 10 percentage points or fewer.

One key reason for these different levels of decline is that the states had different union densities at the beginning of the period we consider. The Rust Belt historically had high union rates, whereas business and policy in the South have traditionally been more hostile to unions (Marshall 1967). The result of these regional declines has been a convergence of union density at low levels nationwide. Figure 3 shows the share of private sector workers covered by a collective bargaining agreement in each state.³ Even the states with the highest collective bargaining coverage (New York, Michigan, Nevada, Washington, Alaska, and Hawaii) only have coverage rates between 10 and 16 percent.

FIGURE 2.

Union Membership by Public and Private Sector, 1973–2018



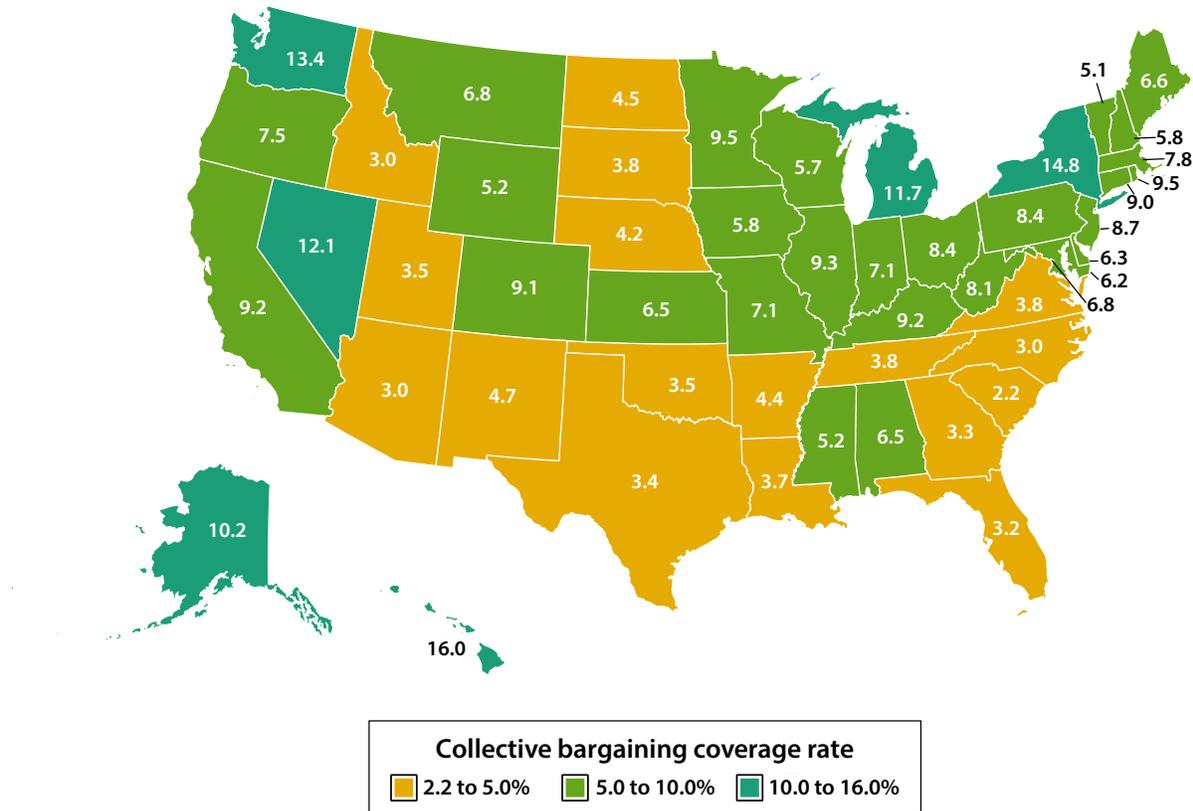
Source: CPS (BLS 1973–83); CPS (BLS 1984–2018); authors' calculations.

Note: Sample is limited to employed wage and salary workers ages 16 and older. We exclude workers who are self-employed, members of the armed forces, or unpaid family workers. "Public sector" and "private sector" represent union member shares of all workers. Missing data interpolated for 1982.



FIGURE 3.

Private Sector Collective Bargaining Coverage



Source: CPS (BLS 2018); authors' calculations.

Note: Data are for 2018. Sample is limited to employed private sector wage and salary workers ages 16 and older. We exclude workers who are self-employed, members of the armed forces, or unpaid family workers. "Collective bargaining coverage rate" refers to the share of workers who are represented by a union contract.



The United States is not the only country to have experienced a decline in union density over the past few decades. Many major industrialized economies have also been part of this downward trend—albeit to different extents. Figure 4 shows the union density trends (including the public and private sectors) for selected member countries of the Organization of Economic Development and Cooperation (OECD) between 1960 and 2013. The green dashed line represents no change in union density from 1960 to 2013; countries above the line have experienced an increase in union density over that time, and countries below the line have seen a decline. Of the selected countries, only three experienced an increase: Italy and Denmark underwent noticeable increases, whereas Canada experienced a slight increase. Even highly unionized Sweden experienced a slight decline. Still, the United States now has one of the lowest union densities among major industrialized economies, and its drop over the past fifty years is second only to Australia’s. France has a slightly lower rate than the United States now, but it started from a much lower rate in 1960, so its decline has not been as steep. Unions have been on the decline in many countries, but their position in the United States is particularly weak.

What Accounts for Declining U.S. Private Sector Unionization Rates?

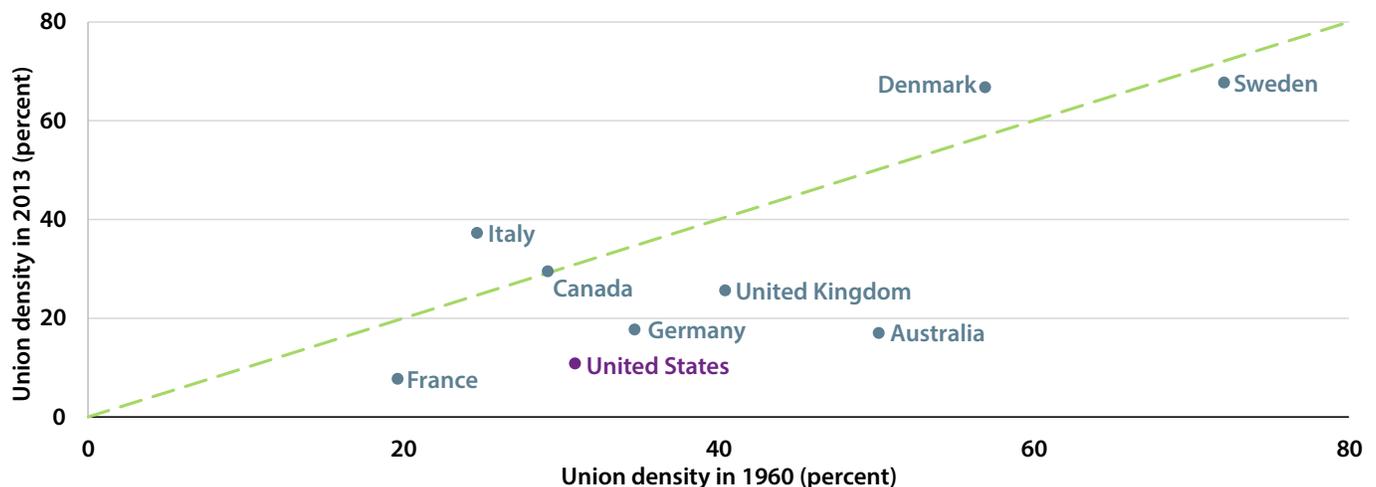
It is not the case that modern workers simply have no need for institutions that provide them with labor market power. With

labor’s share of economic output falling and wages stagnating in the lower part of the wage distribution, today’s economy puts many workers in an increasingly precarious position (Shambaugh et al. 2017). Instead, the decline in union rates reflects a long historical process involving a changing economy and shifting political power.

One of the more public moments in the history of unions in the United States occurred in 1981, when President Reagan fired striking members of the air traffic controllers’ union—an action which epitomized the anti-union political sentiment that came to define that decade. We can see the steepening of the decline in private sector unions starting in the early- to mid-1980s in figure 2. However, as Farber and Western (2000) point out, many of the legal and structural dynamics that caused this mass deunionization were already in place prior to the early 1980s. In this section we analyze some of the longer-term trends.

In efforts to explain the decline in union density, researchers have considered the roles of shifting sectoral composition (Farber and Western 2001), other economic changes like globalization (MacPherson and Stewart 1990) and technology-induced shifts in labor demand (Acemoglu, Aghion, and Violante 2001), as well as policy decisions and employer opposition to unions (Freeman 1988). Policy choices are an especially important area to explore. At both the state and national levels, public policy has become more hostile to labor unions, making it more difficult for unions to retain their members and negotiate with employers (Ellwood and Fine 1987). Next, we investigate several of these economic and policy factors, focusing on the consequences for private sector union membership.

FIGURE 4.
Union Density for Selected OECD Countries, 1960 and 2013



Source: Visser 2019; authors’ calculations.

Note: Estimates include both public and private sector union members. The dashed line represents no change in union density during the period. Observations above the line represent countries that have experienced an increase in union density, whereas observations below the line represent countries that have experienced a decline.

SECTORAL SHIFTS

After a rapid rise of manufacturing from the late-19th to mid-20th century, employment in the U.S. economy has shifted toward services industries, moving employment from industries with traditionally high union membership to those with traditionally lower membership. This transition can explain some but not all (or even most) of the overall decline in union density. Figure 5 shows actual union density (solid green line) and a counterfactual density (dashed green line) that would have occurred if within-industry union densities had remained at 1973 levels, while allowing the industry mix of the economy to evolve over time as it actually did.⁴ The figure shows that shifting industry mix can account for 6.2 percentage points of the private sector union density decline since 1973, leaving 11.6 percentage points of decline to be accounted for by other factors.

The large gap between the counterfactual and actual estimates implies that the bulk of the decline in private sector union rates took place within rather than across industries. (Hirsch 2008 finds similar results.) In fact, private sector union density has declined within all but one major industry: professional and related services. Table 1 shows these changes in union density and employment share by major industry.

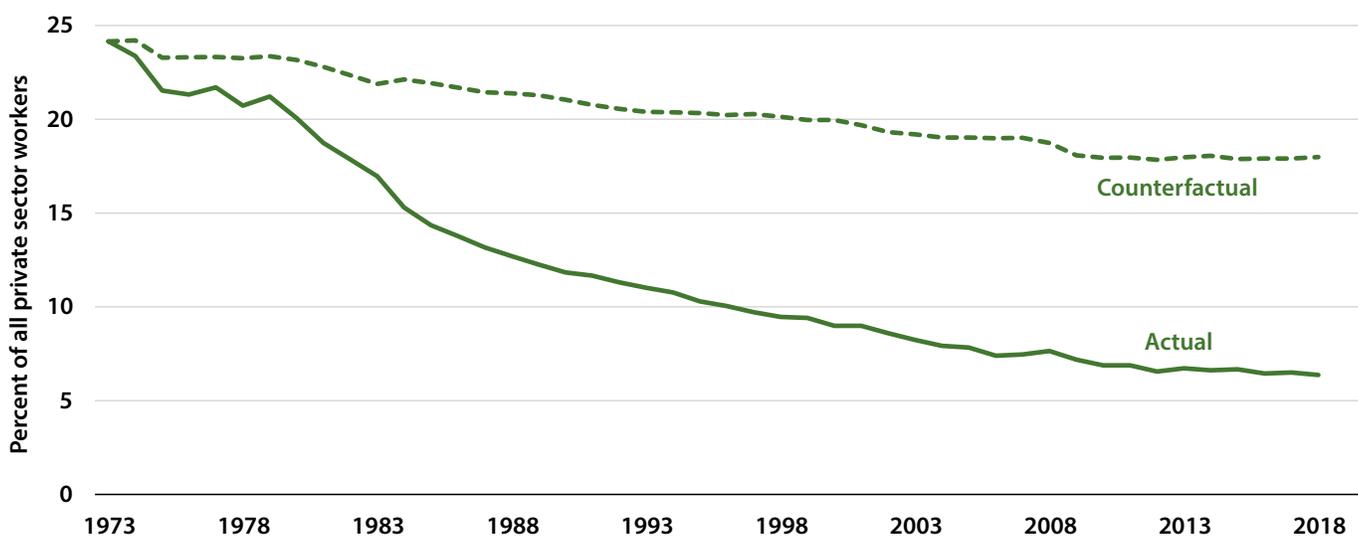
As shown in table 1, manufacturing was a high-union-density industry in 1973 that declined sharply as a share of total U.S. employment (from 32.5 percent in 1973 to 12.7 percent in 2018). At the same time, the professional and related services

industry had a low union density in 1973 but increased its employment share from 11.1 to 25.7 percent over the period. But at least as important as the shifting employment composition is that union density fell from 38.9 to 8.9 percent *within* the manufacturing sector and increased only slightly in professional and related services. While industry union densities varied from 3.9 to 51.4 percent in 1973, those rates converged to a range of 1.9 to 15.4 percent in 2018.⁵

Within-industry declines can be better understood by examining the employment growth of union and nonunion establishments (Farber and Western 2001). Farber and Western find that relatively faster growth of employment within existing nonunion establishments was of primary importance, and that diminishing success in organizing new unions explains little of deunionization.⁶ However, the decline in private sector union organizing has been substantial and merits continued investigation when assessing union density trends (Economic Policy Institute 2019).

Because of the special significance of manufacturing in the history of unions, we examine changes in union density across states within that industry.⁷ A possible explanation for the sharp decrease in manufacturing union density is that manufacturing activity shifted from more-unionized states (e.g., Michigan and Ohio) to less-unionized states (e.g., Alabama, Georgia, and South Carolina). However, we find that shifts in manufacturing employment across states did not play an important role in explaining the decline.

FIGURE 5.
Actual and Counterfactual Union Density if Industry Union Rates Held Constant, 1973–2018



Source: CPS (BLS 1973–83); CPS (BLS 1984–2018); authors' calculations.

Note: Sample is limited to employed private sector wage and salary workers ages 16 and older. We exclude workers who are self-employed, members of the armed forces, or unpaid family workers. Union density refers to the share of private sector workers who are members of a union. "Counterfactual" refers to the private sector union density that would have been observed if each industry's union density had remained unchanged at its 1973 level, but each industry's share of total U.S. employment varied as it actually did. Missing data interpolated for 1982.

TABLE 1.

Private Sector Union Density and Employment Shares by Industry, 1973 and 2018

Industry	Industry union density		Industry share of total employment	
	1973	2018	1973	2018
Agriculture, forestry, and fisheries	5.2%	1.9%	2.1%	2.1%
Business and repair services	11.1%	2.7%	3.4%	8.4%
Construction	39.5%	12.8%	6.7%	6.9%
Entertainment and recreation services	21.3%	6.8%	0.9%	2.2%
Finance, insurance, and real estate	3.9%	2.0%	6.5%	7.5%
Manufacturing	38.9%	8.9%	32.5%	12.7%
Mining	37.6%	4.7%	1.0%	0.6%
Personal services	7.1%	3.9%	5.0%	3.3%
Professional and related services	6.1%	6.7%	11.1%	25.7%
Retail trade	11.7%	3.3%	19.0%	20.6%
Transportation, communications, and other public utilities	51.4%	15.4%	7.2%	7.3%
Wholesale trade	13.3%	4.1%	4.7%	2.8%

Source: CPS (BLS 1973); CPS (BLS 2018); authors' calculations.

Note: Industry shares of total employment for each year sum to 100. The sample is limited to employed private sector wage and salary workers ages 16 and older. We exclude workers who are self-employed, members of the armed forces, or unpaid family workers. "Industry union density" refers to the share of workers in that industry who are members of a union.



Figure 6 shows the shift in the distribution of manufacturing employment across the United States between 1977 and 2018. States in yellow and orange saw declines in their share of total manufacturing employment in the United States, whereas states in green and teal saw increases. Certain parts of the Rust Belt were hit especially hard: Ohio, Pennsylvania, and Illinois saw their shares of manufacturing employment fall by 1.8 percentage points on average. And although a handful of states in the South saw small increases (Alabama, Georgia, and South Carolina), many other states in that region (Kentucky, Louisiana, Mississippi, North Carolina, Tennessee, and West Virginia) saw *declines* in their share of overall U.S. manufacturing employment. In other words, there was not a dramatic shift in manufacturing employment from high-union-density Rust Belt states to low-union-density southeastern states.

As shown in figure 7, union density in the manufacturing sector declined in every state during the period. The dashed line represents no change in union density between 1977 and 2018; any state below the line underwent a decline in union density in their manufacturing sector. Importantly, no state is above or even on the dashed line. Many traditionally low-union-density states actually had high union density in their manufacturing sectors in 1977—for example, Alabama's manufacturing-sector union density was 31.5 percent. Just as

importantly, historically high-union-density states such as Michigan, Ohio, Oregon, Pennsylvania, and Wisconsin—all of which had close to 50 percent manufacturing-sector union density in 1977—have fallen to under 20 percent today.⁸ Thus, the decline in density was taking place within states, and was not primarily due to employment shifts across states.

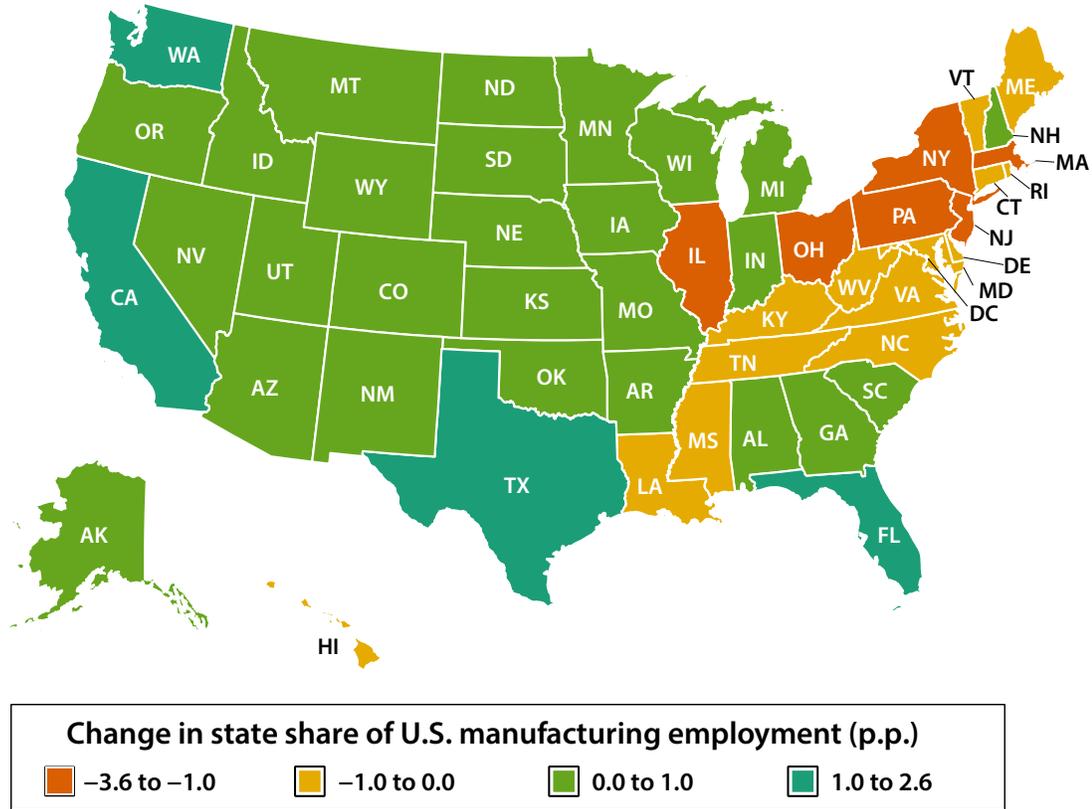
OTHER ECONOMIC FACTORS

Other economic shifts may also be important. For example, women are traditionally less likely to be union members, raising the possibility that women's increasing share of employment may have contributed to lower private sector union density. Had men and women remained at their 1973 unionization rates, the increasing share of women in the labor force would only account for 1.5 percentage points of the overall decline.⁹ However, differences in unionization across gender seem unlikely to be innate and more likely attributable to the types of industries and occupations that have traditionally had higher shares of women employees. Once we have taken into account the tendency of men and women to work in different industries, gender has little independent role in accounting for the overall union density decline.

Rising educational attainment can account for a large portion—7.0 percentage points—of declining union density when other factors are excluded from the analysis. Workers

FIGURE 6.

State Changes in Share of National Manufacturing Employment, 1977–2018



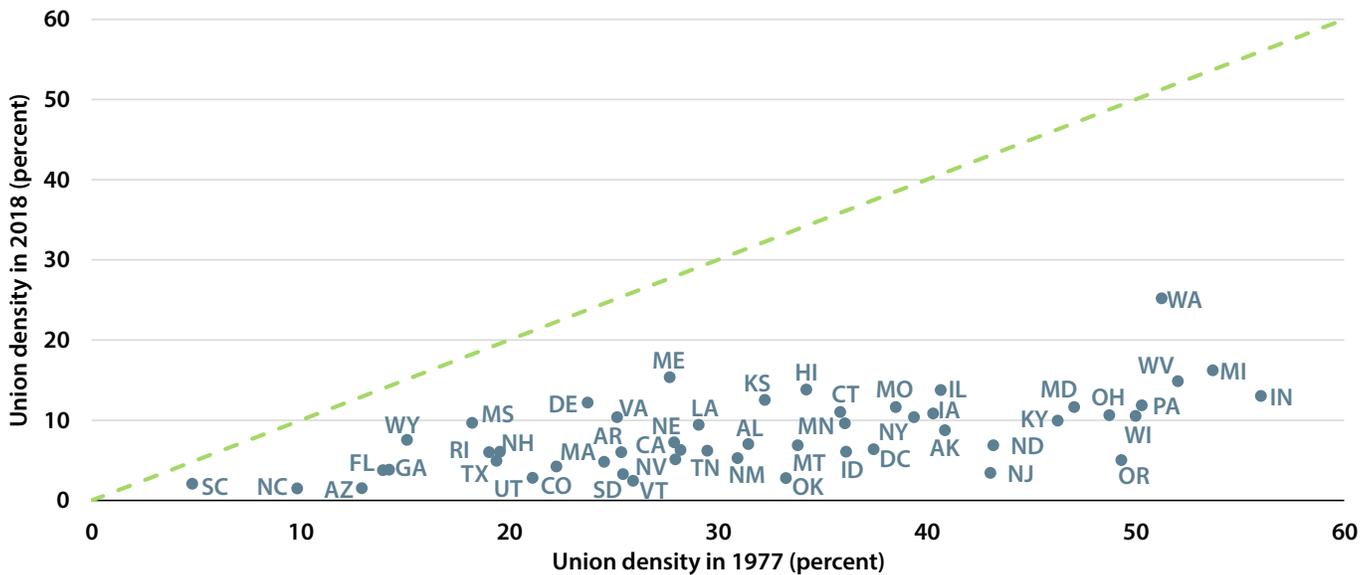
Source: CPS (BLS 1977–83); CPS (BLS 1984–2018); authors' calculations.

Note: The map shows percentage point change in each state's share of total U.S. manufacturing employment between 1977 and 2018. The sample is limited to employed private sector manufacturing wage and salary workers ages 16 and older. We exclude workers who are self-employed, members of the armed forces, or unpaid family workers.



FIGURE 7.

Union Density for the Manufacturing Sector by State, 1977 and 2018



Source: CPS (BLS 1977); CPS (BLS 2018); authors' calculations.

Note: The dashed line represents no change in union density of a state's manufacturing sector during the period; observations below the line are states in which union density in the manufacturing sector declined between 1977 and 2018. The sample is limited to employed private sector manufacturing wage and salary workers ages 16 and older. We exclude workers who are self-employed, members of the armed forces, or unpaid family workers.



with higher levels of education have traditionally worked in industries or occupations where they are infrequently represented by unions. In 1973 28.1 percent of private sector workers with a high school degree or less were union members; by contrast, 7.1 percent of those with only a four-year postsecondary degree were union members. (In 2018 those estimates were 7.1 and 4.9 percent, respectively.) As educational attainment has risen, the labor force has increasingly been made up of workers who historically have not been union members, but there has also been a sharp drop in union rates for those with less education.

Some researchers have offered explanations for declining density that emphasize differences in skill levels. Acemoglu, Aghion, and Violante (2001) argue that technology-induced changes in labor demand have altered the incentives faced by high-skilled workers. As their potential earnings in nonunion employment rise, more high-skilled workers have joined nonunion establishments. Regardless of why wage inequality has risen in the nonunion sector, compressed wage schedules in the unionized sector may be less sustainable when there is more inequality in nonunion wage options.¹⁰ In other words, higher overall inequality could lead to more of the highest-skilled union members shifting to nonunion employment.

Deregulation that occurred during the late 1970s and 1980s may also have been a factor. During those two decades, several major industries (e.g., airline, trucking, and telecommunication) experienced significant deregulation. Farber (2005) finds that the deregulation in all three of these industries weakened unions' bargaining position by making market entry easier for nonunion establishments.¹¹ More generally, competition with nonunion establishments can lead to a decline in the employment share of union establishments, in particular if unions raise wages relative to productivity and hence reduce profitability (Hirsch 2008).

THE ROLE OF CHANGING LABOR LAWS

As shown above, shifts in the sectoral, geographical, or demographic composition of the U.S. labor market over the past few decades cannot fully explain the decline in union density. Changes in public policies, including the spread of right-to-work legislation, are potentially important.

Right-to-work legislation implements the open shop model, in which workers at a union establishment may decide not to join the union or pay dues.¹² When states pass this legislation (as shown in figure 8), it can lead to a free-rider problem in which workers have diminished incentive to join unions or pay dues, given that they will share in the benefits of any union contract that is negotiated whether or not they join.

Right-to-work policies have had significant labor market impacts. Holmes (1998) found that from 1947 to 1992

counties in right-to-work states featured more manufacturing employment growth relative to nearby counties in states that do not have right-to-work laws—what some have called “free bargaining” states (Eisenbrey 2015).¹³

However, right-to-work laws do not appear to be the principal explanation for the within-state decline in union density between 1977 and 2018.¹⁴ Figure 9 shows union density for three groups: states that did not have a right-to-work law between 1977 and 2018, states that have had such a law since 1977, and states that adopted a right-to-work law between 1977 and 2018. As one would expect, states that began the period with right-to-work laws had an average union density well below that of other states. What is perhaps more surprising is that union density fell substantially for all three groups. Moreover, shifts in the state distribution of employment do not account for a large share of the change in overall union density over this period. It may be that weakening the financial resources available to major national unions has constrained their activities and, as such, that right-to-work laws may contribute to the overall trend. Nevertheless, the sharp decline of unions in states that do not have right-to-work laws demonstrates that the absence of such laws does not guarantee union strength.¹⁵

EMPLOYER RESISTANCE

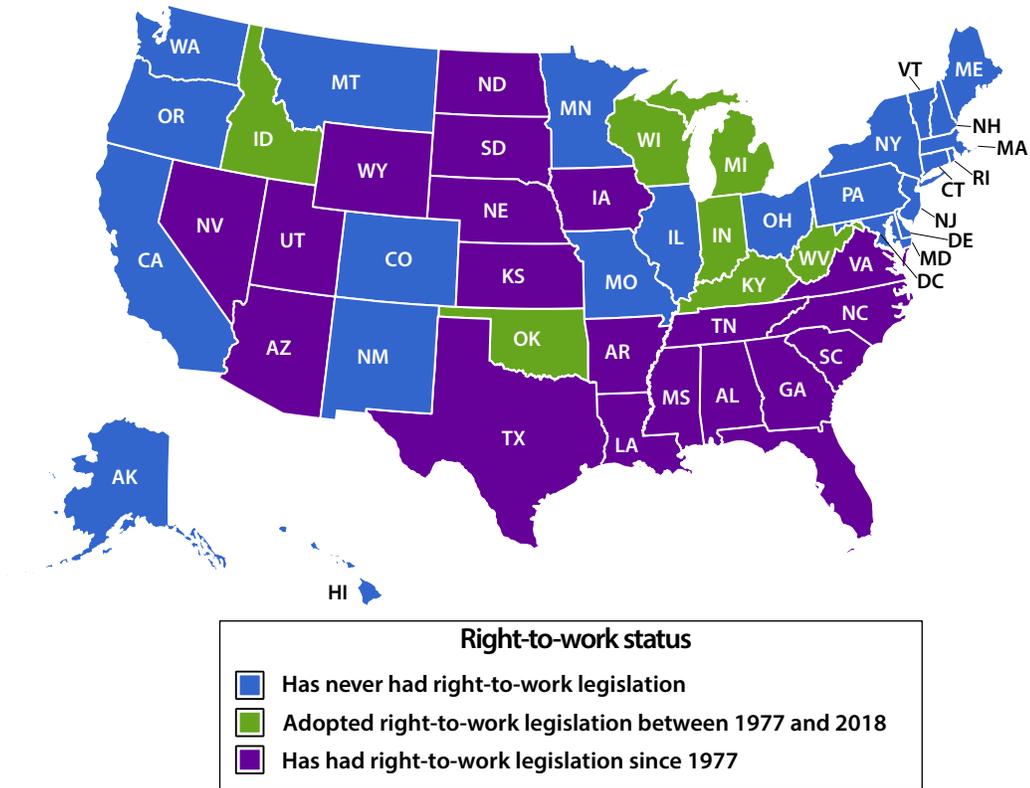
It is widely believed that employers have become more aggressive in their tactics to thwart the formation of a union (Abowd and Farber 1990; Freeman and Medoff 1984) and that this resistance has played a role in the decline of private sector union density (Kleiner 2001). Employer resistance could be one explanation for the low rate of union membership relative to the stated desire of workers for both unions and a voice in workplace decisions (Kochan et al. 2019).

Freeman (1988) surveys research that has analyzed the effects of employers' anti-union activities. With one exception, all of the studies presented by Freeman find that the employer's behavior had an effect on the result of votes to certify unions.¹⁶ Employer actions ranged from delays between petition and election (Prosten 1979), hiring of management consultants to resist unionization (Lawler 1984), and anti-union speech by management (Drotning 1967). Riddell (1993) finds that differences in employer reactions to unionization efforts are one reason for the gap in U.S. and Canadian union density rates.

Some employers use aggressive, illegal tactics—like threats to fire workers for union activity—as part of their efforts to resist unions (Bronfenbrenner 2009). Kleiner and Weil (2010) show that the National Labor Relations Act (NLRA) remedies available for employer violations of employment law fail to offset the damages done and do not effectively deter employers from engaging in illegal behavior.

FIGURE 8.

Right-to-Work Status, 1977–2018



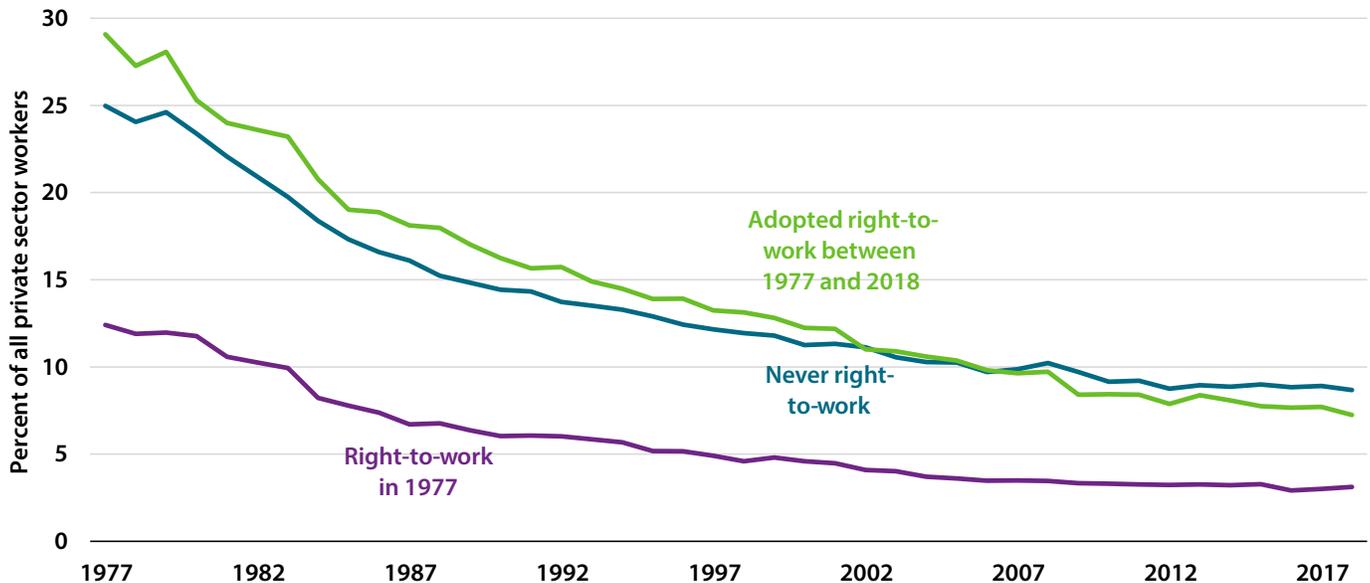
Source: Collins 2014; authors' calculations.

Note: Blue represents states that did not have right-to-work legislation between 1977 and 2018, green represents states that passed right-to-work legislation between 1977 and 2018, and purple represents states where right-to-work legislation has been in place since 1977. West Virginia passed a right-to-work bill in 2016. As of mid-2019, West Virginia's right-to-work status remains unclear due to ongoing legal actions.

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FIGURE 9.

Union Density by Right-to-Work Status, 1977–2018



Source: CPS (BLS 1977–83); CPS (BLS 1984–2018); authors' calculations.

Note: Sample is limited to employed private sector wage and salary workers ages 16 and older. We exclude workers who are self-employed, members of the armed forces, or unpaid family workers. The blue line represents the person-weighted union density for states that did not have right-to-work legislation between 1977 and 2018. The green line represents the person-weighted union density for states that passed right-to-work legislation between 1977 and 2018. The purple line represents the person-weighted union density for states where right-to-work legislation has been in place since 1977. West Virginia passed a right-to-work bill in 2016. As of mid-2019, West Virginia's right-to-work status remains unclear due to ongoing legal actions.

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What Do Unions Do

The decline of union density documented above is important only to the extent that unions have meaningful implications for workers and firms. Next we turn to the labor market effects of unions and collective bargaining, describe the relevant research, and conduct our own analysis of the most-recent data.

WAGES AND BENEFITS

A core objective of collective bargaining is to secure higher compensation for union members, whether in the form of higher wages or better benefits.¹⁷ Many researchers have focused on estimating the wage advantage (the union wage premium) that union-covered workers receive relative to nonunion counterparts. These efforts have spanned many decades and have applied a variety of methodological approaches, resulting in a range of estimates. The typical approach is to calculate the wage difference between union and nonunion workers after adjusting for the observable differences in those workers' characteristics. This method can provide a broad picture of how union workers fare in the labor market—allowing researchers to examine how the wage premium differs by education and industry, for example—but it may be biased by unobservable differences between union and nonunion workers. For instance, if union members are generally more productive than nonunion workers (in a way that is not captured by skill measures or caused by unions themselves), the union wage premium will appear larger than it actually is.

In general, estimates of the union wage premium derived from this method have tended to be in the 15 to 20 percent range (DiNardo and Lee [2004](#); Farber et al. [2018](#)).¹⁸ Working with Current Population Survey (CPS) data, Card ([1996](#)) adjusted for union status misclassification and persistent unobserved differences between workers. Card found an overall union wage premium of 17 percent, with the premium substantially higher for low-skilled workers and substantially lower for high-skilled workers.¹⁹ Other studies have estimated smaller effects: DiNardo and Lee ([2004](#)) used the fundamentally different strategy of comparing wages at firms that were unionized by a narrow voting margin to those at which a union narrowly lost its certification election. For workers in these types of firms, DiNardo and Lee estimate only a small or nonexistent union wage premium. However, the authors note several possible explanations for the discrepancy in results, including the possibility that marginal unions (i.e., those that just recently and barely won their certification elections) may be weaker than other unions, and so less able to confer wage increases.

Comparing the wage distributions of union and nonunion workers using 2018 CPS data, we find substantial differences in pay. The median hourly wage for workers covered by a union contract is distinctly higher: half of all union workers earn more than \$25.00, while nonunion workers (after adjustments to make them comparable to union workers) have a median wage of just \$19.23. The gap is large at the low end of the distribution: 8.1 percent of nonunion workers earn \$10.00 or less whereas just 3.7 percent of union workers do (Bureau of Labor Statistics [BLS] 2018; authors' calculations).²⁰ At high wages the union and nonunion distributions converge.

These patterns are apparent in figure 10, where we implement the DiNardo, Fortin, and Lemieux ([1996](#)) procedure to compare the union-covered wage distribution with the nonunion-covered wage distribution, after adjusting the latter for observable differences between workers. The union distribution remains shifted well to the right, indicating that workers at a given point in the union distribution are paid more than their nonunion equivalents.

INEQUALITY AND DISTRIBUTION

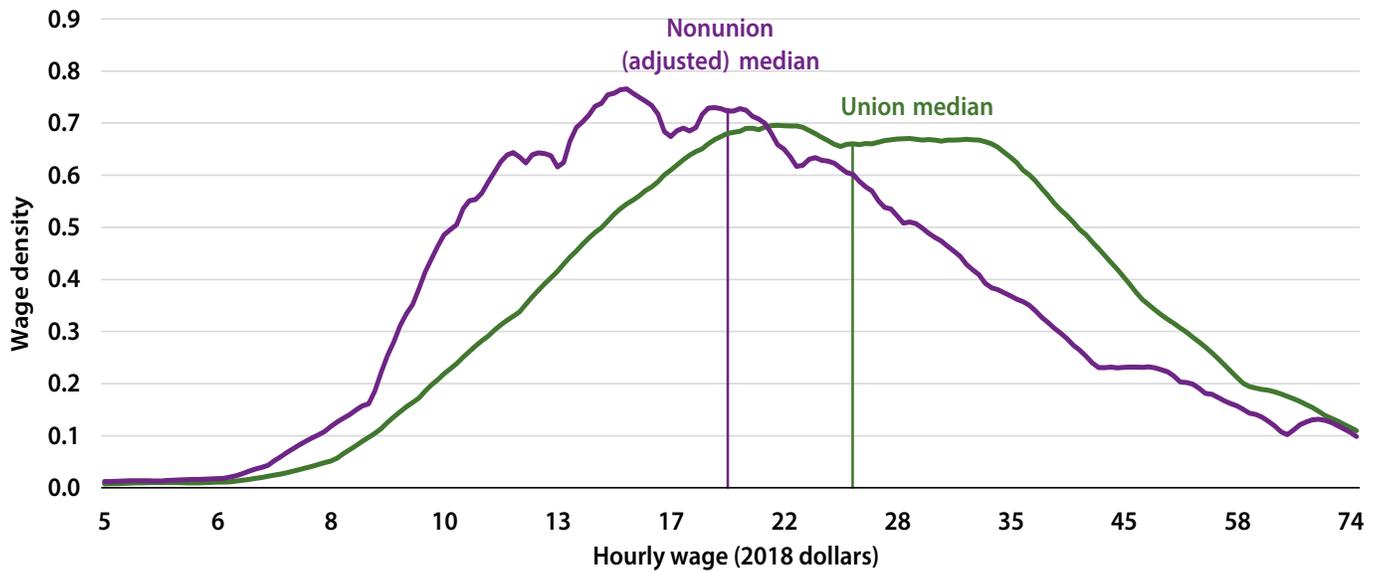
The wage premium that union-covered workers receive is to a large extent a transfer from capital to labor. Lee and Mas ([2012](#)) examine stock market reactions to union certification elections and find that on average firms' market value declines by \$40,500 per unionized worker, equivalent to a 10 percent union wage premium. Like DiNardo and Lee ([2004](#)), they find that slight electoral victories (relative to slight losses) yield smaller effects, with larger electoral wins driving the declines in market value. These results are consistent with previous studies that find much of the union wage premium to be associated with a reduction in profits (Voos and Mishel [1986](#)).

In addition to raising wages for the workers they represent, unions also affect wage inequality. On the one hand, the wage premium contributes to inequality by raising pay for union workers relative to nonunion workers, but on the other hand, unions tend to compress wages within their ranks, limiting the number of very-low-wage or very-high-wage workers. In other words, because the union wage premium is substantially larger for low-skilled workers than for high-skilled workers, wage inequality is reduced. Card ([2001](#)) finds in 1993 data that, for men, union wages were substantially less variable than wages of nonunion workers even after adjusting for observable differences between workers; we find similar differences using the same approach with 2018 data.²¹

Like most researchers, Card ([2001](#)) and Lemieux, Card, and Riddell ([2004](#)) find that unions reduce wage inequality overall. Had the union effect on wage inequality remained constant between 1973–74 and 2001, Lemieux, Card, and Riddell ([2004](#)) estimate that inequality would have grown 14 to 31 percent less than it in fact did. Incorporating spillover

FIGURE 10.

Wage Distributions for Comparable Union and Nonunion Workers



Source: CPS (BLS 2018); authors' calculations.

Note: Data is for 2018. The sample is limited to employed private sector wage and salary workers ages 16 and older who report earnings data. We exclude observations for which all earnings data were allocated. We exclude workers who are self-employed, members of the armed forces, or unpaid family workers. Estimates for the "Nonunion (adjusted)" series are derived from a DiNardo, Fortin, and Lemieux (1996) reweighting with controls consisting of gender, race, quadratic expressions of age, educational attainment category, geographic region, major industry, and detailed occupation. Sample weights are used throughout. The figure shows distributions for wages between \$5 and \$75. The horizontal axis is shown on a log scale.



effects on nonunion workers, Fortin, Lemieux, and Lloyd (2019) conclude that declining union density from 1979 to 2017 explains nearly 40 percent of the growth in 90th percentile men's wages relative to 50th percentile men's wages (a common measure of wage inequality). And Farber et al. (2018) show that unions had a significant impact on the equality of incomes over the 20th century.

EFFECTS ON NONUNION WORKERS

Unions may also have important effects on the labor market as a whole. The threat effect and the crowding effect are two principal channels through which the nonunion labor market is affected. As the name suggests, the threat effect consists of higher wages that nonunion employers pay in order to reduce the chance of future unionization; the crowding effect is the reduction in wages that occurs when employment falls in the union sector and workers crowd into the nonunion sector (Kahn and Curme 1987; Neumark and Wachter 1995).²²

Union density, demographic variation, and regulatory environment can all matter for the relative size of the effects. For example, Kahn (1980) found that nonunion white men in a union-dense area earn real wages that are substantially higher than those of nonunion white men in less-union-dense areas; however, for nonunion white women the effect is smaller and in the opposite direction. Farber (2005) highlights the importance of the regulatory environment for a union's ability to positively affect the wages of nonunion

workers in that industry. He finds evidence that deregulation of the airline, trucking, and telecommunication industries—which reduced the threat effect—resulted in lower wages for both union and nonunion workers.²³

Assessing impacts of the decline in private sector union density, Denice and Rosenfeld (2018) find that nonunion male workers would earn 6 percent higher weekly wages in 2015 if union density had remained at its 1977 level. For women, the authors calculate that the effect would have been substantially smaller but still positive.

Unions also affect the economy through impacts on work norms. These norms of equity and fair pay constrain employer decisions, changing compensation patterns (Mishel 2012; Western and Rosenfeld 2011). It is possible that a host of changes in U.S. labor practices that are unfavorable to workers—such as the rise of the use of noncompete contracts, sporadic scheduling, and mandatory arbitration agreements—would not have developed in a labor market with a larger private sector union presence.

EFFICIENCY

Unions can have powerful effects on the allocation of income, shaping overall compensation levels and inequality. But unions also matter for economic efficiency and the ways that production is organized. The classic view of collective bargaining suggests that it comes with a clear trade-off: a

more-egalitarian income distribution and a higher labor share of income are achieved at the cost of distortions in the output and labor markets (Johnson and Mieszkowski [1970](#)). According to this view, raising wages in the union sector reduces employment and production. Moreover, employers may have less flexibility to reorganize tasks and change production processes in response to economic shocks (Freeman and Medoff [1982](#)). The work rules negotiated by unions may protect workers but also make firms less nimble and less efficient, potentially slowing productivity growth.

However, there are at least two reasons to believe that the economic costs of unions are smaller than they once appeared. First, unions can play a constructive role in solving communication and coordination problems between employers and workers (Doucouliagos and Laroche [2003](#); Freeman and Medoff [1984](#)). For example, an employer may face understandable reluctance on the part of workers to accept pay reductions after a collapse in product demand. By sharing private financial information with a union, which in turn can credibly communicate to its members that concessions are necessary, it is possible to better navigate changing economic conditions. Alternatively, in industries with mobile workers—like construction—firms may underinvest in training, and unions can play an important role in raising skills and hence productivity of workers.

Second, researchers have gained an increased appreciation for just how distant labor markets can be from the competitive ideal. Labor market frictions, concentration (i.e., monopsony power), and employer-favoring institutions like noncompete contracts (Krueger and Posner [2018](#)) give employers considerable leverage in setting wages (Shambaugh et al. [2018](#)). Rather than distorting an otherwise competitive labor market, a union may simply rebalance a market that was already “rigged,” as Krueger puts it ([2017](#)). Indeed, a union could lead to more-efficient labor market outcomes in such cases (Manning [2003](#)), with stronger effects in less-competitive markets (Sojourner et al. [2015](#)).

POLITICAL PARTICIPATION

Unions matter for economic outcomes—the principal focus of this analysis. But they also affect political participation, and hence declining union membership can have political effects. Unions enhance the likelihood that workers in unionized occupations are elected to state legislatures (Sojourner [2013](#)). In addition, unions affect the direction of public policy (Feigenbaum, Hertel-Fernandez, and Williamson [2019](#); Stegmueller, Becher, and Kappner [2018](#)). Feigenbaum, Hertel-Fernandez, and Williamson further show that right-to-work laws tend to reduce Democratic vote shares by significant margins.

What Could the Future of Collective Bargaining Look Like?

There may be no immediate prospect of a reversal in the decline of private sector unionization, but the labor market conditions that led to the creation of unions remain pressing. Long-run wage stagnation for some workers and the falling labor share of income suggest that policymakers should assess options for strengthening worker bargaining power, including new approaches and new strategies (Shambaugh and Nunn [2018](#)).

We now explore a few major alternatives to the traditional U.S. collective bargaining model. In several instances, these institutions can be complements, rather than substitutes, for existing collective bargaining between specific firms and unions.

SECTORAL BARGAINING

The U.S. model of enterprise-level collective bargaining (bargaining between specific firms and unions) is not the only possible approach, nor is it the only approach used around the world. In some countries workers and employers negotiate at the industry level in what is known as sectoral bargaining. Union representatives, employers, and often government officials will come together in tripartite meetings to discuss wages, benefits, and other issues for the sector.

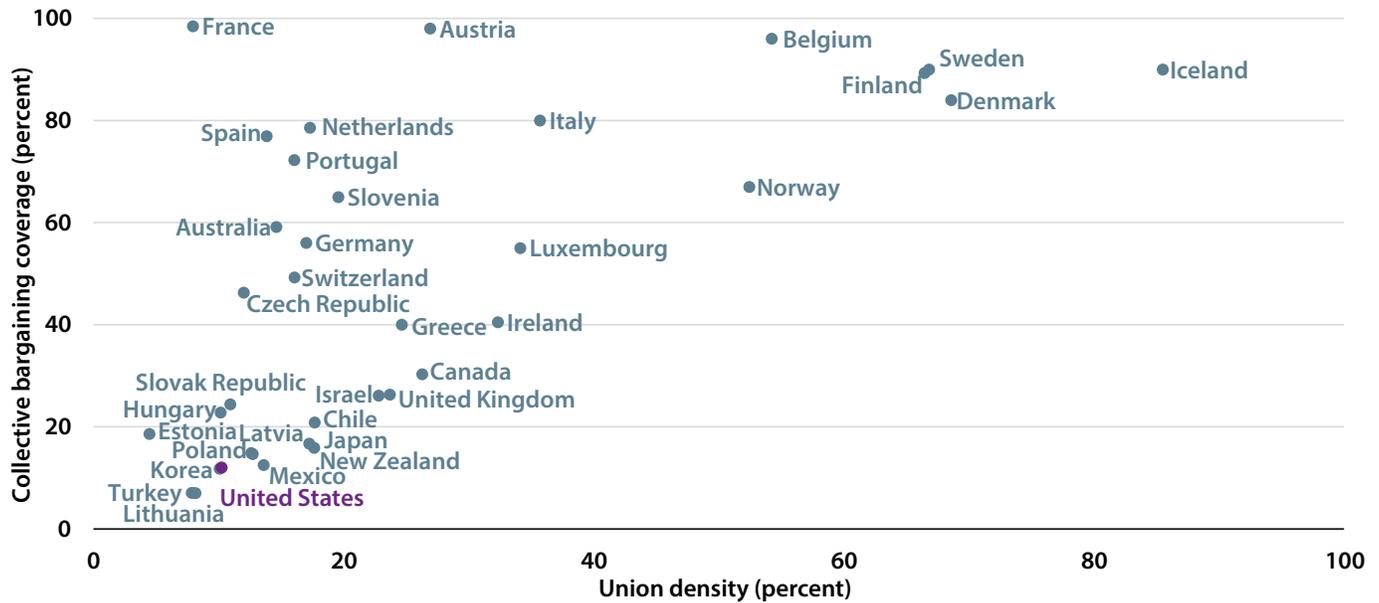
In several countries with sectoral bargaining—France, Germany, Spain, and the Netherlands being notable examples—collective bargaining coverage rates are quite high while union membership is low. By contrast, the United States now has low rates of both. Figure 11 reports these two measures for OECD countries. As noted earlier, France has a union density below the United States, and yet figure 11 shows it has a collective bargaining coverage rate close to 100 percent.

Sectoral bargaining has the key practical advantage that it provokes less employer opposition; no individual employer has a strong incentive to resist union organization when all employers will be bound by the same bargaining outcome (Dube [2019](#)). Relative to enterprise-level bargaining, sectoral bargaining can have the disadvantage of being less responsive to changes in employer-specific conditions (Katz [1993](#)). Regardless, several legal impediments exist in current U.S. labor law, making it difficult for unions to engage in sectoral bargaining (Barenberg [2015](#)). Without addressing these challenges, it is unlikely that this form of bargaining will be implemented in the United States.

However, some of the goals of sectoral bargaining can be achieved through other means. One example is prevailing wage legislation, which is currently used in the United States

FIGURE 11.

Union Density and Collective Bargaining Coverage for OECD Countries



Source: OECD 2019a; OECD 2019b; authors' calculations.

Note: Data are for 2016 or the most recent year available. Estimates include both public and private sector union members. Union density estimates may differ slightly from those in figure 4.



to set minimum compensation standards for government-funded projects (Madland 2019). This approach could be extended to the private sector, requiring nonunion employers to meet union-negotiated compensation standards.

WAGE BOARDS

Wage boards are institutions that bring together stakeholders from various industries or occupations to set minimum wage levels for different types of work. Rather than rely exclusively on a minimum wage that applies to all (or nearly all) jobs, countries with wage boards apply a variety of minimum wages to different parts of the labor market. Australia is a notable example: It has a system of wage boards that affect the earnings of nearly 25 percent of workers (Madland 2018). Dube (2019) argues that these wage boards improve not only the earnings of workers at the bottom of the income distribution, but also the earnings of those in the middle. Indeed, several European countries have no national minimum wage law, and instead use institutions like wage boards to set wage floors at the industry or occupation level (Dolado et al. 1996). These rules would bring the same potential concerns associated with any minimum wage: if raised too high they could price some workers out of an occupation, including those working in relatively low-wage geographical locations.

This form of wage-setting also exists in the United States at the state level. California currently has boards that determine minimum wages and other policies (e.g., overtime pay) for 17 different industries (Dube 2019; Madland 2018).²⁴

WORKS COUNCILS AND CODETERMINATION

In addition to setting sector-level minimum wages, some scholars have called for the creation of works councils to enhance enterprise-level worker voice (i.e., the ability of workers to have input into employer decisions). Works councils, which are common in Germany and other Western European countries, are groups of employees elected by their coworkers to coordinate with employers. The German experience suggests that these councils can serve as complements to other collective bargaining institutions (Freeman and Lazear 1995). For example, in many European countries wage bargaining is left to the sectoral bargaining process, whereas works councils focus on firm-specific concerns like worker safety. In Germany the presence of works councils in establishments covered by centralized bargaining agreements increases productivity-enhancing activities (Hübler and Jirjahn 2003). One potential reason is workers' increased access to information, which can improve coordination and trust between employers and workers. Freeman and Lazear (1995) suggest that employees at firms with works councils are more likely to take a long-term view of the company's success and are more willing to make efficient concessions during hard times.

Freeman and Lazear (1995) argue that voluntary works councils may be unstable and tend to dissolve in the face of conflict; this is why they prefer mandatory works councils. However, there is skepticism as to whether this sort of mandate would be legal under the NLRA (Dimick 2014).

Whereas works councils provide employees with an opportunity to coordinate with their employers on shop floor-level issues, some have called for more worker representation at higher levels of management. One such U.S. proposal is the Accountable Capitalism Act that would require that 40 percent of directors on a firm's board be selected by the firms' employees. This would be different from the other models—all of which focus on different ways for workers to negotiate with management—and would instead give workers a larger direct voice in management.

REINFORCING ENTERPRISE-LEVEL UNIONIZATION

The options discussed above have not historically been typical features of the U.S. labor market. As this paper has documented, enterprise-level unions are, by contrast, institutions with deep roots in U.S. law and markets. Naidu (2019) offers a number of possibilities for reinforcing unions and expanding their role, some of which we discuss next.

Card Check and Other National Labor Relations Board (NLRB) Reforms

Under current law, the most common way an establishment-level union is formed is that at least 30 percent of workers sign a petition asking the NLRB to hold an election. In order for a union to be federally recognized, a majority of workers' votes must favor unionization. A problem with this process, as discussed above, is that management will often aggressively intervene to avoid a successful union campaign during the period between petition and election. Prosten (1979) found that there was a 12.5-percentage-point difference (59.0 percent vs. 46.5 percent) in the chance of winning a union election depending on whether the election was held the same month as the petition was filed or five months afterward.

Some advocates have therefore suggested moving to a card check system (currently used in Canada), whereby a union must be recognized once a majority of workers sign cards indicating their support for having a particular union represent them in bargaining with their employer. This process makes it easier for organizers to convince workers to support the union and limits the effectiveness of employer campaigns against organization efforts. Riddell (2004) finds that management opposition campaigns are twice as successful in defeating traditional election certifications as compared to card check processes.

Other changes to NLRB policy could bolster unionization at the margins. For example, under current law independent contractors, domestic workers, and farm workers are not granted the same collective bargaining rights as other employees (29 U.S.C. § 152(3); 29 U.S. Code § 157). Harris and Krueger (2015) propose extending organizing rights to many nontraditional employees, including some independent contractors. Freeman (2011) suggests other reforms, including

changes in the timing of elections and stronger remedies for illegal employer behavior. One such remedy is to allow workers to bring civil suits against employers for violations; another is to raise the NLRB enforcement budget. Yet a third option is to make it legal (as is not currently the case under the NLRA) for unions to engage in secondary boycotting, allowing unions to take actions against their employer with the aim of preventing them from doing business with another establishment that is in the midst of a labor dispute with another union.

Legal Barriers to Hiring Replacement Workers

The ability to strike is a core element of union leverage: by walking out and halting an establishment's production, workers force employers to come to the bargaining table and negotiate. This leverage is limited by the ability of employers to hire permanent replacement workers. In the 1980s employers made increasing use of this strategy (Naidu 2019; Pope 2004), and strikes became far less common. In 1947 there were 270 major work stoppages, in 1983 there were 81, and in 2017 there were only 7 (BLS 1947–2018; authors' calculations), though recent years have seen increased strike activity in the public sector.²⁵ Placing further limits on employers' right to hire replacement workers would likely strengthen the union position.

Minority Unionism

One option for facilitating the formation of unions is to relax the requirement that they obtain support from a majority of employees. In minority unionism (also known as members-only unionism), workers can form a union and participate in traditional union activities (e.g., meeting to discuss grievances and bargaining with management). Of course, members-only unions would represent a smaller number of workers and therefore would have reduced leverage in negotiations with employers. However, members-only unions can—in addition to enhancing worker voice—help create the infrastructure for future majority union formation (Harcourt, Lam, and Wood 2014).

This form of bargaining already exists in New Zealand and Canada. Legal precedent in the United States currently prevents minority unionism, but some legal scholars argue that current NLRA provisions could be reinterpreted to make it possible (Hyde, Sheed, and Uva 1993).

Union-provided Worker Benefits

In the United States, worker benefits like unemployment insurance and health insurance are typically provided either by employers or the government, with little or no role for unions to play (except in bargaining for more-generous benefits). However, unions play a more-expansive role in some other countries. One reason for the consistently high

union density rates in the Nordic countries is that they use the Ghent system of unemployment insurance. In this scheme, the unions control unemployment funds, and those funds offer much more-generous unemployment benefits than the less-well-funded state program. These large benefits are a crucial recruiting point for Nordic unions (Clasen and Viebrock [2008](#); Scruggs [2002](#)). Expanding the role of U.S. unions in providing benefits to their members could make union membership more attractive and boost overall union density.

Conclusion

In the mid- to late-20th century, labor unions helped to raise members' wages, improve working conditions, and reduce inequality. They gave workers an amplified voice and helped them achieve more bargaining power relative to employers. Over the past 45 years, private sector union density in the United States has declined precipitously, falling from 24.2 percent in 1973 to 6.4 percent today. This decline has

occurred within most major industries and within every state. Although the United States is not an outlier across advanced economies in experiencing deunionization, the U.S. decline was particularly dramatic. Understanding the reasons for and consequences of the decline is particularly important in an economy characterized by increasing inequality and stagnant wages for typical workers.

As union density declined, federal and state governments have intervened through legislative and regulatory efforts to implement some of the standards and rights that unions historically bargained for. This substitution has been incomplete in the sense that public policy does not confer the same range of benefits on workers. If unions are to regain a larger role in representing worker interests, changes would likely need to be made to current labor relations law and institutions. Options for doing so include making more use of sectoral bargaining, wage boards, works councils, and co-determination in addition to making it easier for workers to form unions. As policymakers look for ways to restore worker bargaining power and wage growth, collective bargaining should be part of the discussion.

Endnotes

1. Indeed, from one perspective employers are intrinsically organized in a way that individual workers are not, in that shareholders coordinate with each other and delegate bargaining authority to managers (Paul [2019](#)).
2. Over a longer horizon, the decline is even more sharp. Some of the decline in union density occurred prior to the starting year of this figure (1973). The figure is restricted to years for which higher-quality data are available.
3. Collective bargaining coverage rates are typically higher than unionization rates because union-negotiated contracts will often cover both members and nonmembers. Differences in these rates are typically small in the United States, but are larger in some countries, such as France, where union membership is limited but collective bargaining coverage is high.
4. For the counterfactual line presented in figure 5, we estimated the union densities in 1973 for the 12 major private sector industry categories (i.e., two-digit industry groups) and held them constant throughout the period. (Results are similar when we use three-digit industries for the 1984–2018 period, when harmonized industry classifications are readily available.) We allowed the industry shares of total employment for each of these industry categories to change at their actual rates, thus isolating the role of shifts in industry composition.
5. While the decline of unionization within manufacturing may appear to be a response to competition outside the United States, it is also important to note that there was a large union density decline in less tradable sectors relatively unaffected by globalization, such as wholesale trade, retail trade, communications, utilities, and transportation.
6. Dinlersoz, Greenwood, and Hyatt ([2017](#)) examine union organization patterns, finding that unions tend to organize younger, larger, and more-productive establishments. This is in spite of the fact that unions are less likely to win certification elections at larger and more-productive establishments.
7. Sojourner et al. ([2010](#)) find similar results for the nursing home industry; shifts across states in nursing home employment cannot explain an appreciable portion of the decline in nationwide nursing home union density.
8. In an unreported counterfactual calculation like the one shown in figure 5, the role of state employment shifts in explaining deunionization is shown to be quite weak. Shifting employment across states explains only 1.5 and 1.6 percentage points of the declines in manufacturing union density and overall union density, respectively.
9. Examining the 1977–91 period, Farber and Krueger ([1993](#)) similarly find that changing labor force composition plays a limited role in explaining declines in union density.
10. See Hirsch ([2004](#)) for a related discussion of sorting and selection.
11. See also Fortin and Lemieux ([1997](#)) for a discussion of the role of deregulation.
12. Prior to the passage of the Taft-Hartley Act of 1947, unionized workplaces fell into one of four categories: a closed shop, a union shop, an agency shop, or an open shop (Roof [2011](#)). (1) A closed shop is one where employers could only hire and employ union members. (2) A union shop is one where workers who are not union members can be hired, but must join the union within a certain period. (3) An agency shop is one where workers can be hired and stay employed even if they are not in a union as long as they pay a share of dues to the union to support core representation activities. Finally, (4) an open shop is one where the establishment may employ workers without regard to union membership or payment of dues (Roof [2011](#)).
13. Other researchers have found smaller impacts of right-to-work laws on employment. Eren and Ozbeklik ([2015](#)) find no impact of Oklahoma right-to-work legislation on total employment. See Moore and Newman ([1985](#)) for a survey.
14. This period was well after most states with right-to-work laws had adopted them, and was also later than the period examined by Holmes ([1998](#)). In addition, Holmes focused on border counties, and found evidence that policy had very different implications as distance from the border increased.
15. Some recent research does find significant negative impacts of right-to-work laws on union density (Eren and Ozbeklik [2015](#)).
16. In the selected studies presented in Freeman ([1988](#)), only Getman, Goldberg, and Herman ([1976](#))—a study that looks at employer campaign tactics—find that management activity did not affect election outcomes. However, Dickens ([1983](#)) reanalyzed the same data and found that employer tactics during campaigns did have a significant effect on union election outcomes.
17. We largely omit discussion of nonwage benefits in this economic analysis. See Buchmueller, DiNardo, and Valletta ([2004](#)); Budd and Mumford ([2004](#)); Freeman and Kleiner ([1990](#)); and Pierce ([2001](#)) for analysis of these effects.
18. This literature is too extensive to be adequately described here. Importantly, these premium estimates vary over time (Hirsch [2004](#)). Furthermore, industry-specific wage premiums have changed differently over time (Bratsberg and Ragan [2002](#)).
19. The union wage premium can vary across decades, throughout the business cycle, and by sector and location (Blanchflower and Bryson [2003](#), [2004](#)). Although some studies have suggested that the union wage premium was procyclical in the 1970s, the consensus is that it is countercyclical, with tight labor markets disproportionately benefiting nonunion workers (Blanchflower and Bryson [2004](#); Bratsberg and Ragan [2002](#)).
20. The bottom quarter (i.e., lowest 25 percent) of workers not covered by a union contract earn an hourly wage of \$13.75 or less, whereas the bottom quarter of workers covered by a union contract earn \$17.09 per hour or less (BLS 2018; authors' calculations).
21. Specifically, Card ([2001](#)) found that the residual standard deviations of nonunion and union wages were 0.446 and 0.363, respectively.
22. Olson ([2019](#)) finds evidence that a diminishing threat effect has contributed to the decline in employer-provided health insurance.
23. The threat of unionizing is especially consequential for wages when union density is relatively high in a given geographic area (Kahn [1980](#); Neumark and Wachter [1995](#)).
24. Similarly, Governor Andrew Cuomo of New York created a Fast Food Wage Board that helped advance the state's "Fight for \$15" movement (Andrias [2016](#)).
25. The year 2018 saw an increasing amount of strike activity, with 20 major work stoppages (BLS [2019](#)). The number of workers involved (485,000) was more than the previous six years combined and was the largest number since 1986 (BLS 1947–2018; authors' calculations). This strike activity largely occurred in the public sector as teachers walked out in Arizona, Oklahoma, West Virginia, and other states. Ninety percent of work stoppage participants in 2018 were from the educational services, health-care, and social assistance industry groups (BLS [2018](#)).

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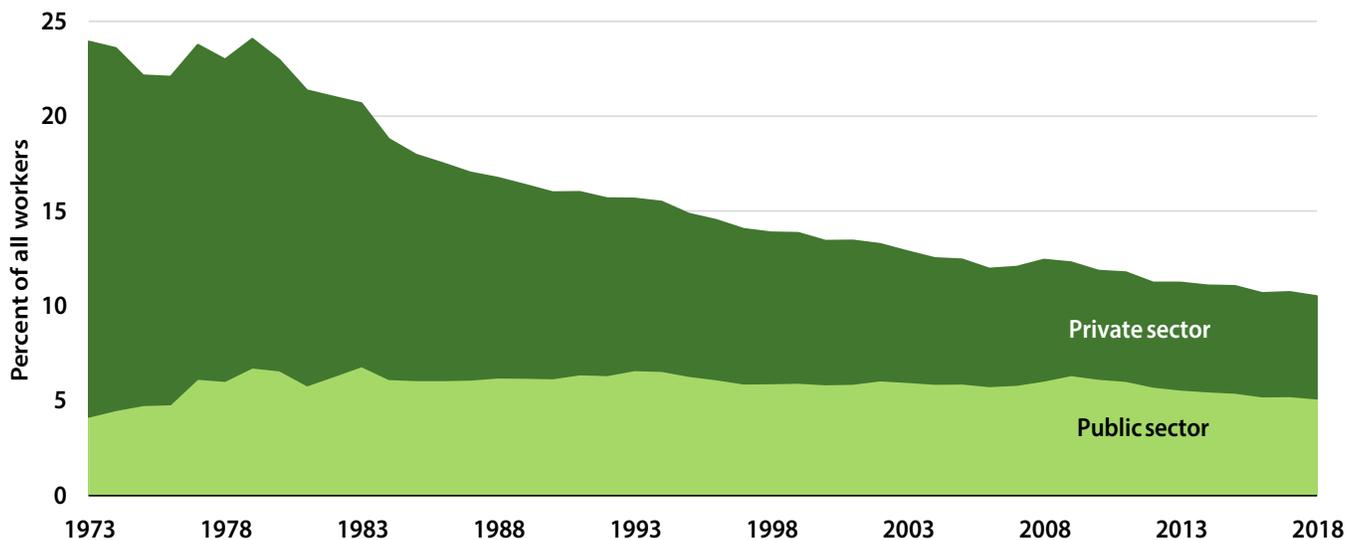
JAY SHAMBAUGH
Director

Abstract

Long-run wage stagnation for lower-wage workers—and rising inequality between high- and middle-wage workers—seems to indicate a modern labor market in which many workers have little bargaining power. In the middle of the 20th century, more than 30 percent of U.S. workers were members of a union: a core institution that provides workers with bargaining power. Today, after a long decline that took place almost entirely within the private sector, just 10.5 percent of workers (and 6.4 percent of private sector workers) are union members. We find that the decline in private sector union membership has been driven by falling union density both within industries and within states, with a smaller role for shifting industry composition. The decline in union membership is economically important: unions lift wages, reduce inequality, and shape how work is organized, among other effects. We examine options for reinforcing enterprise-level unions as well as other models for collective bargaining and enhanced worker voice.

FIGURE 2.

Union Membership by Public and Private Sector, 1973–2018



Source: CPS (BLS 1973–83); CPS (BLS 1984–2018); authors' calculations.

Note: Sample is limited to employed wage and salary workers ages 16 and older. We exclude workers who are self-employed, members of the armed forces, or unpaid family workers. "Public sector" and "private sector" represent union member shares of all workers. Missing data interpolated for 1982.

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